

FIG. 1A

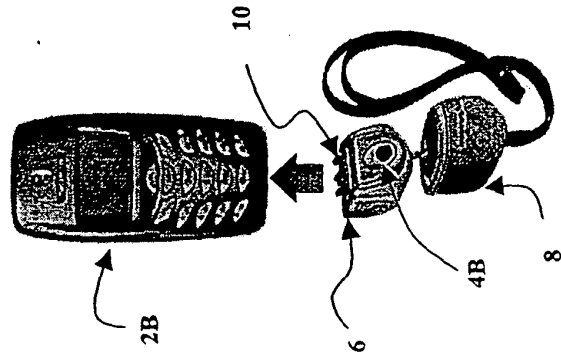


FIG. 1B

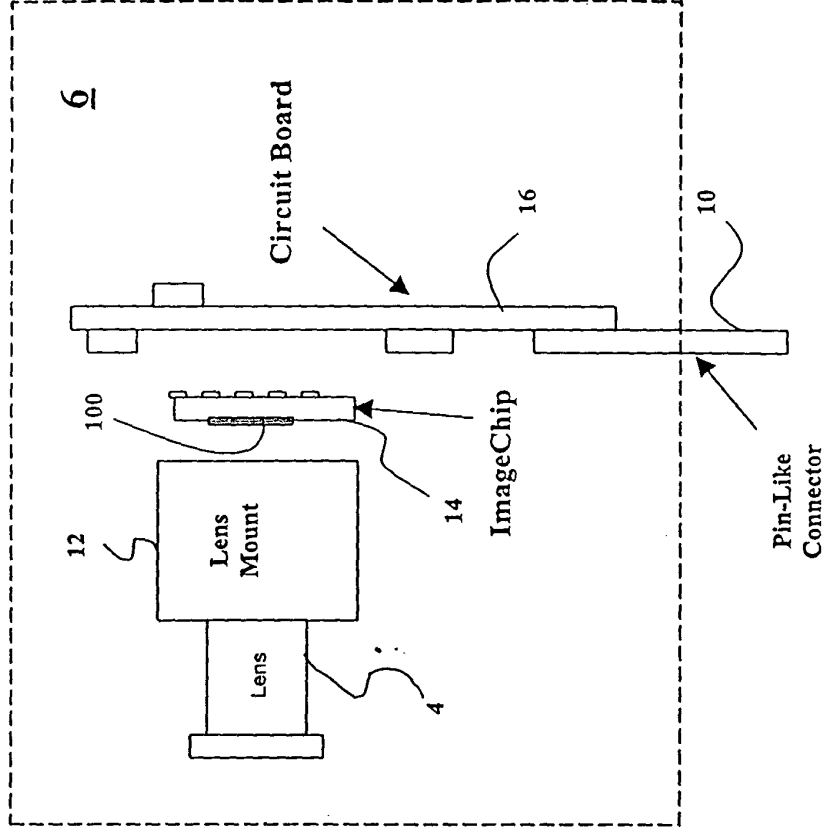


FIG. 1C

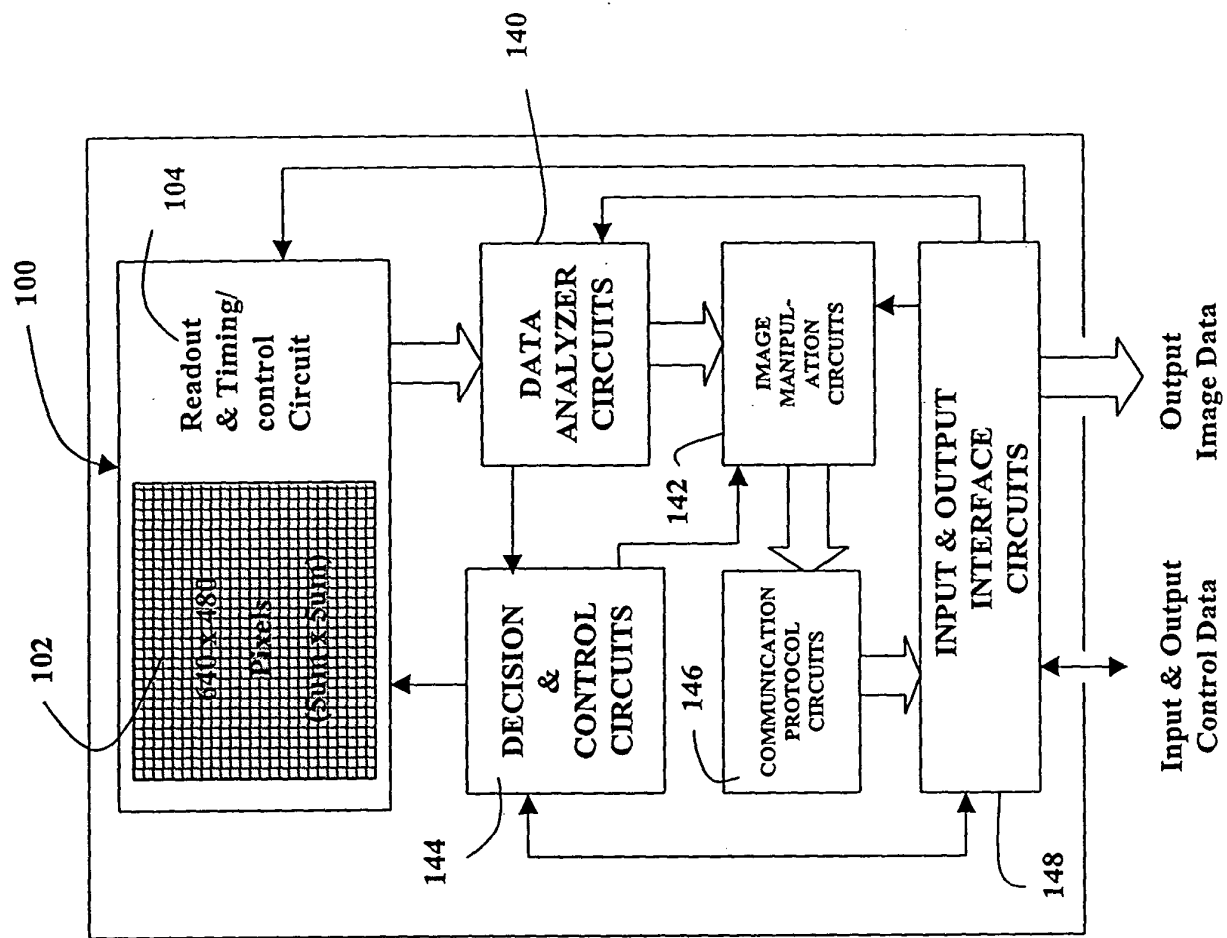


FIG. 2

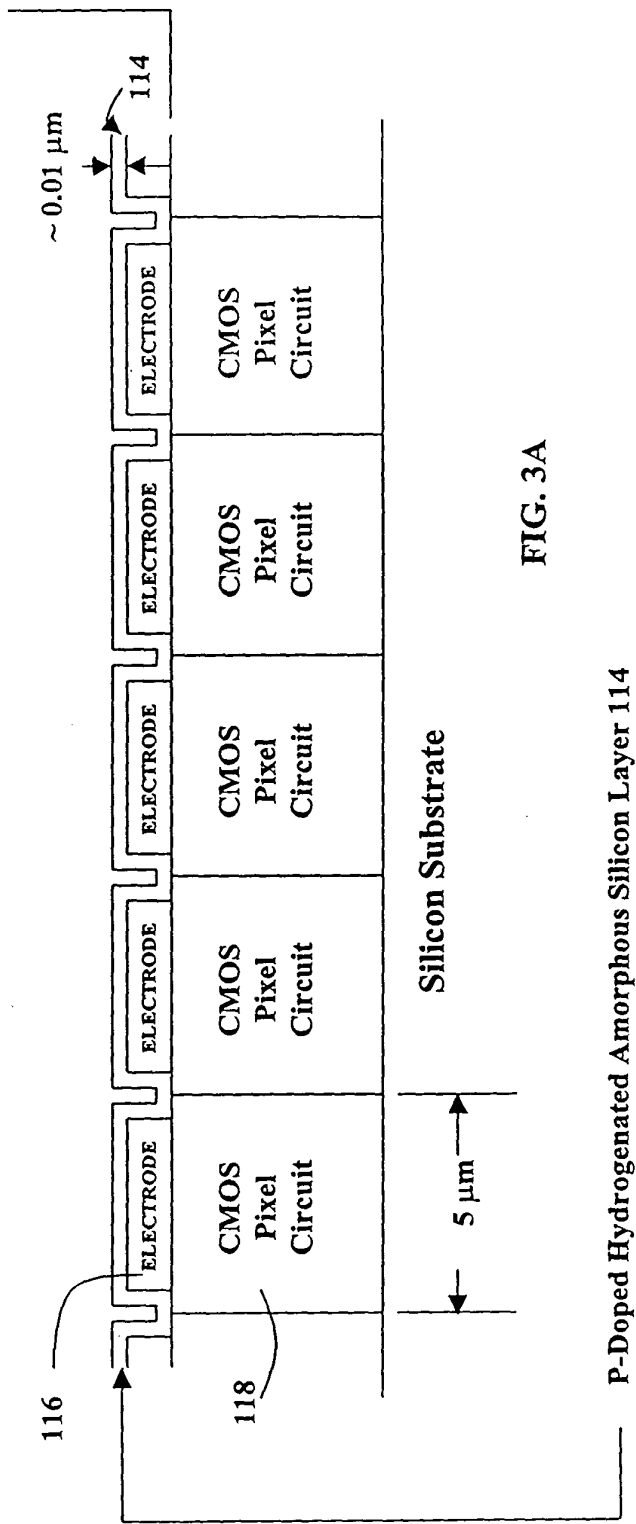
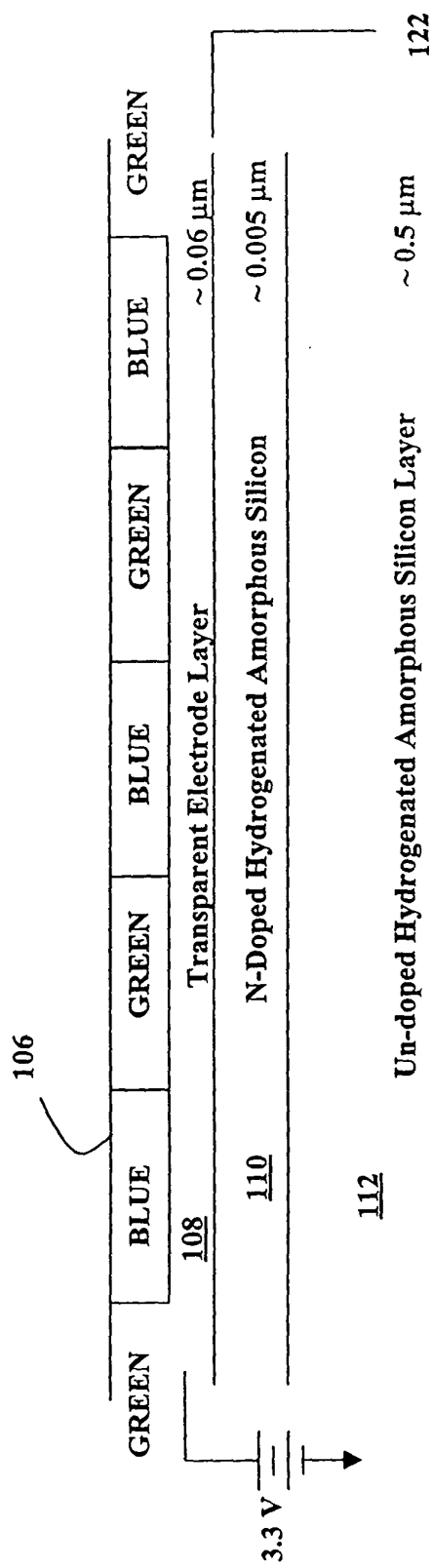


FIG. 3A

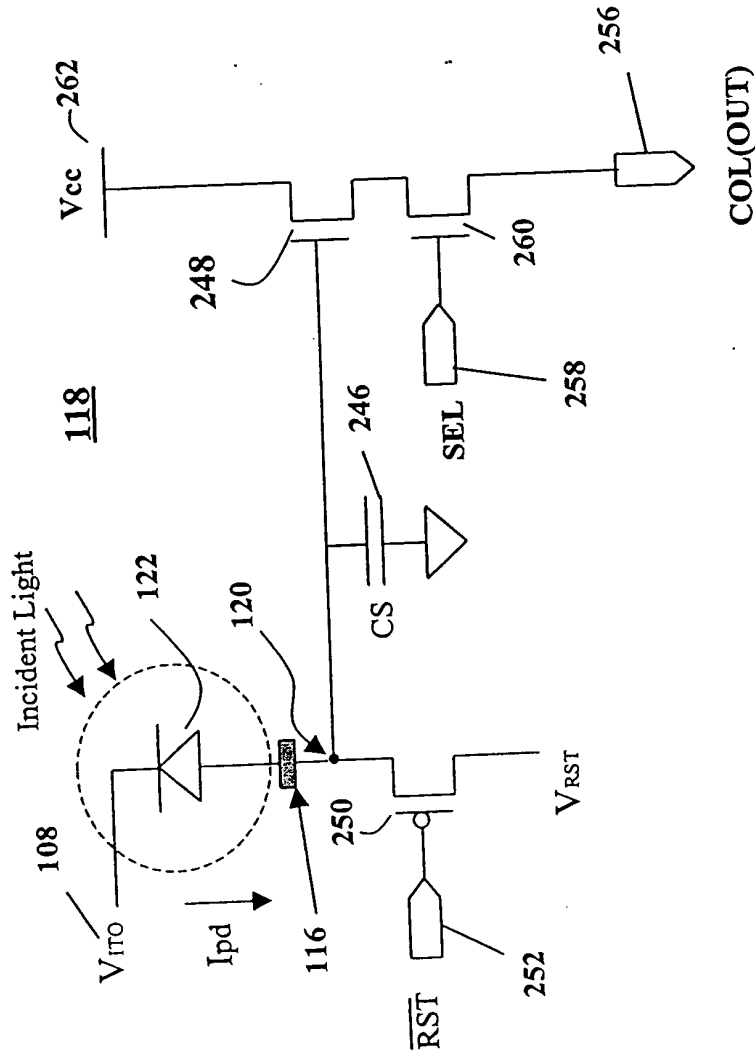


FIG. 3B

FIG. 3C

R	G	R	G	R
G	B	G	B	G
R	G	R	G	R
G	B	G	B	G

# POAP Sensor Pixel Cell Array

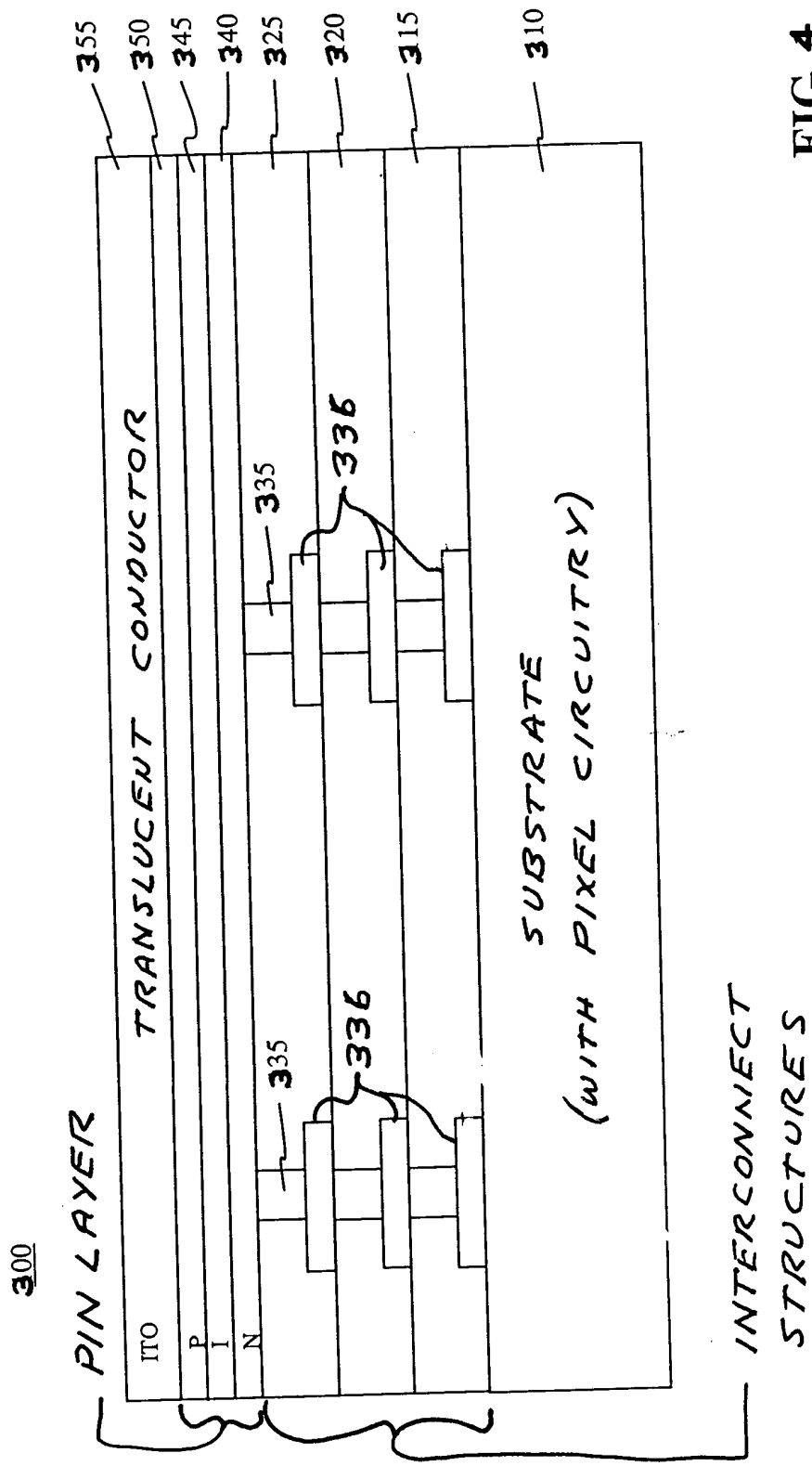
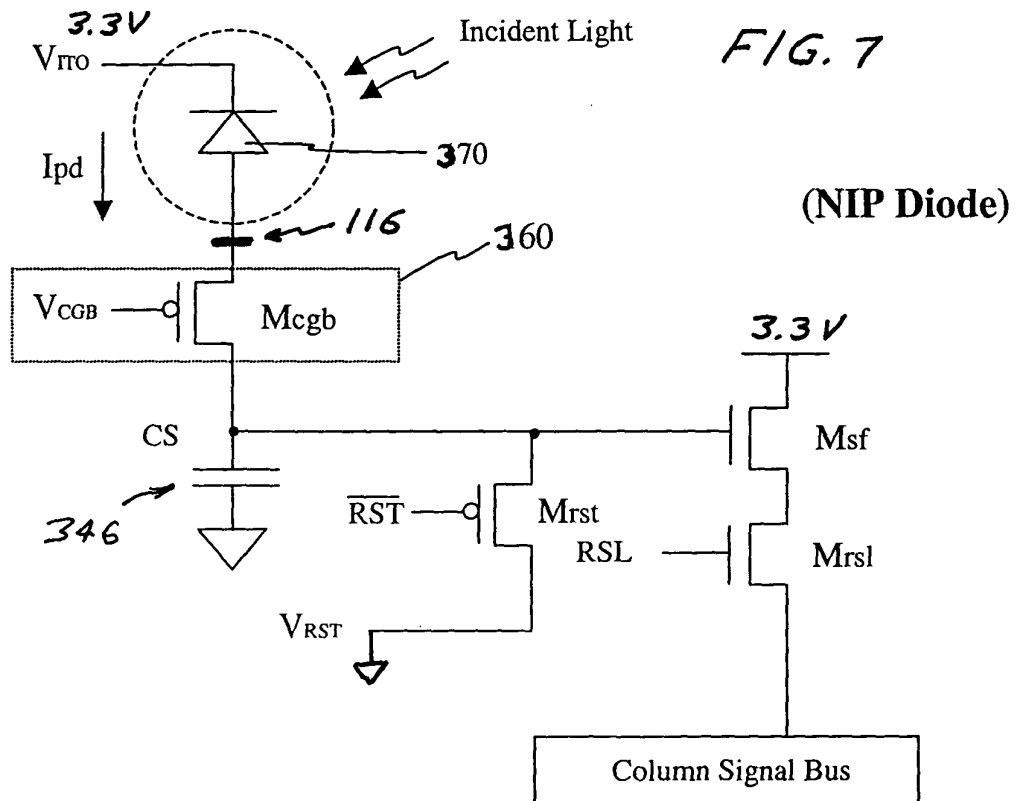
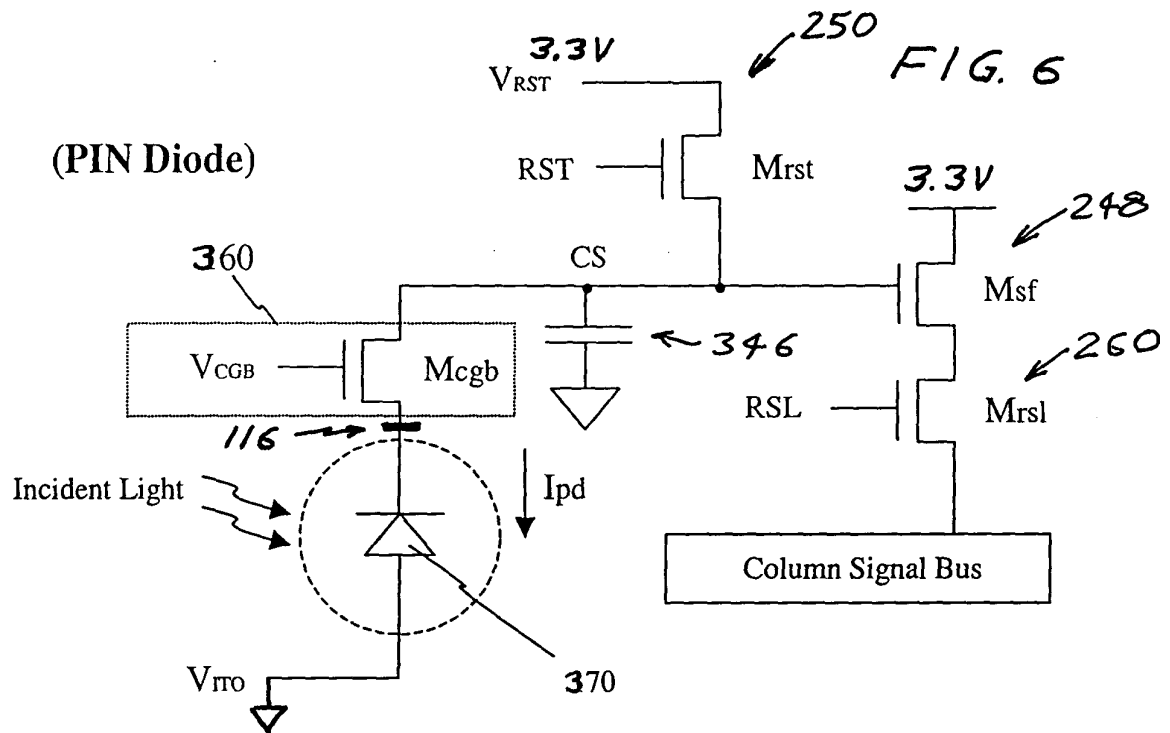


FIG. 4

300



# Individual Pixel Cell Circuitry



400

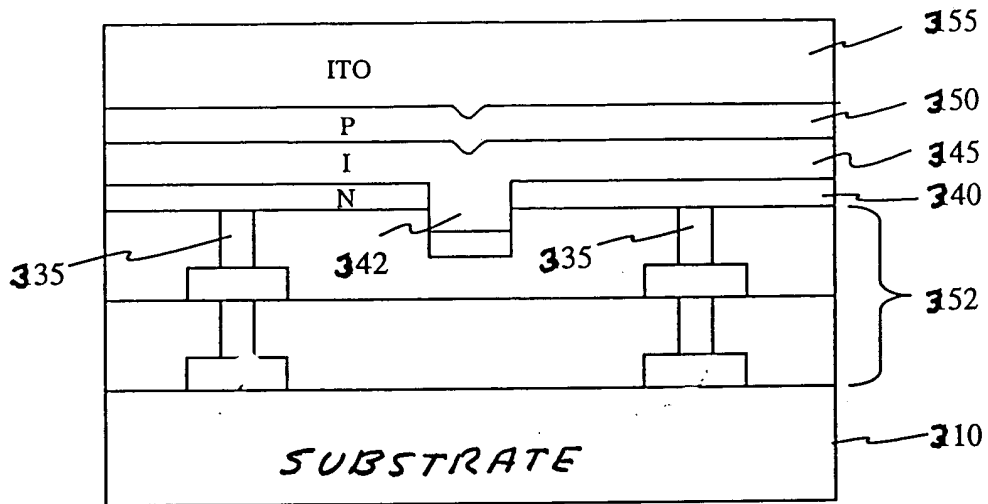


FIG. 8

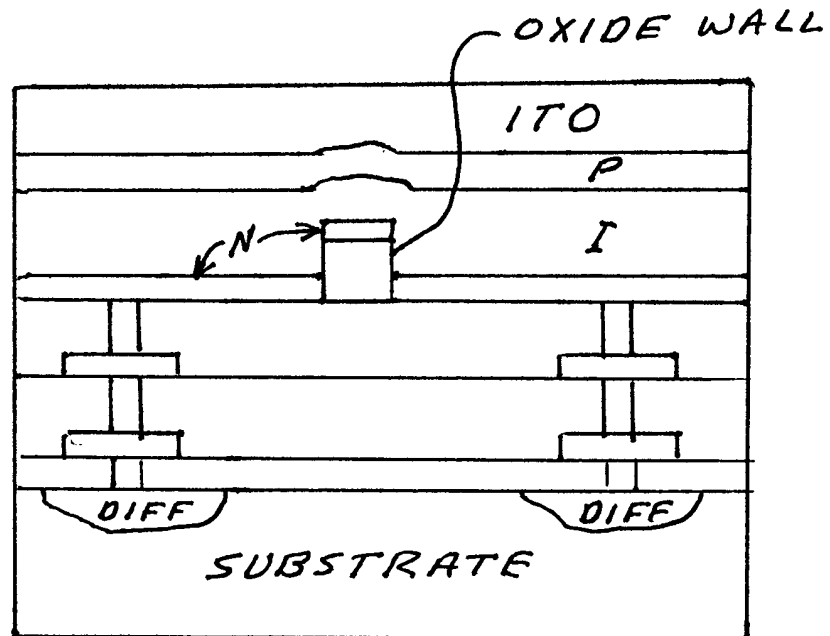


FIG. 8A



500

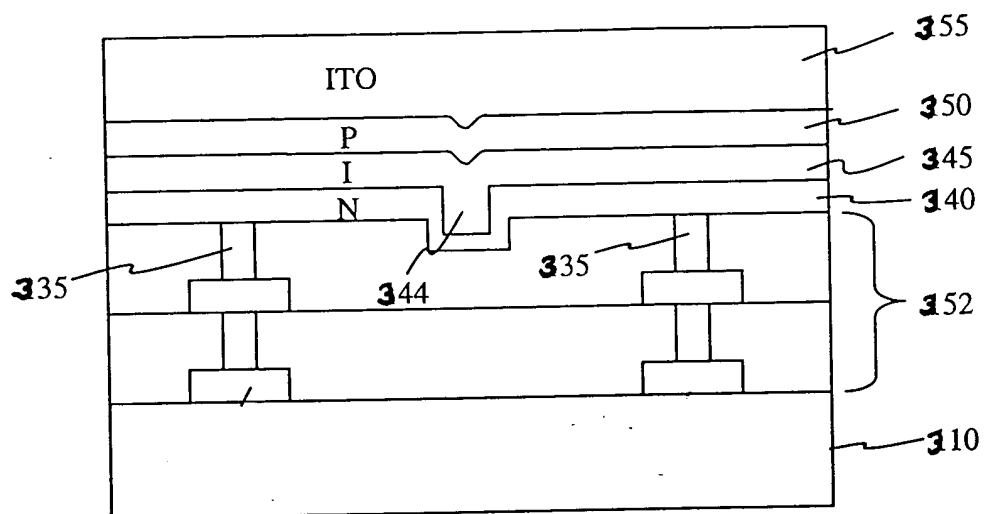


FIG. 9

600

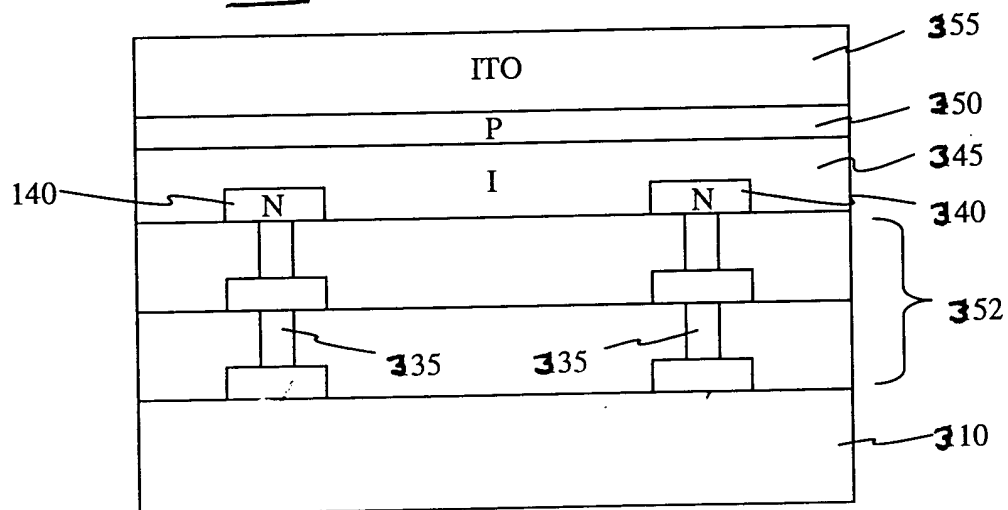


FIG. 10

# Individual Pixel Cell Circuitry (Six-Transistor Architecture)

(PIN Diode)

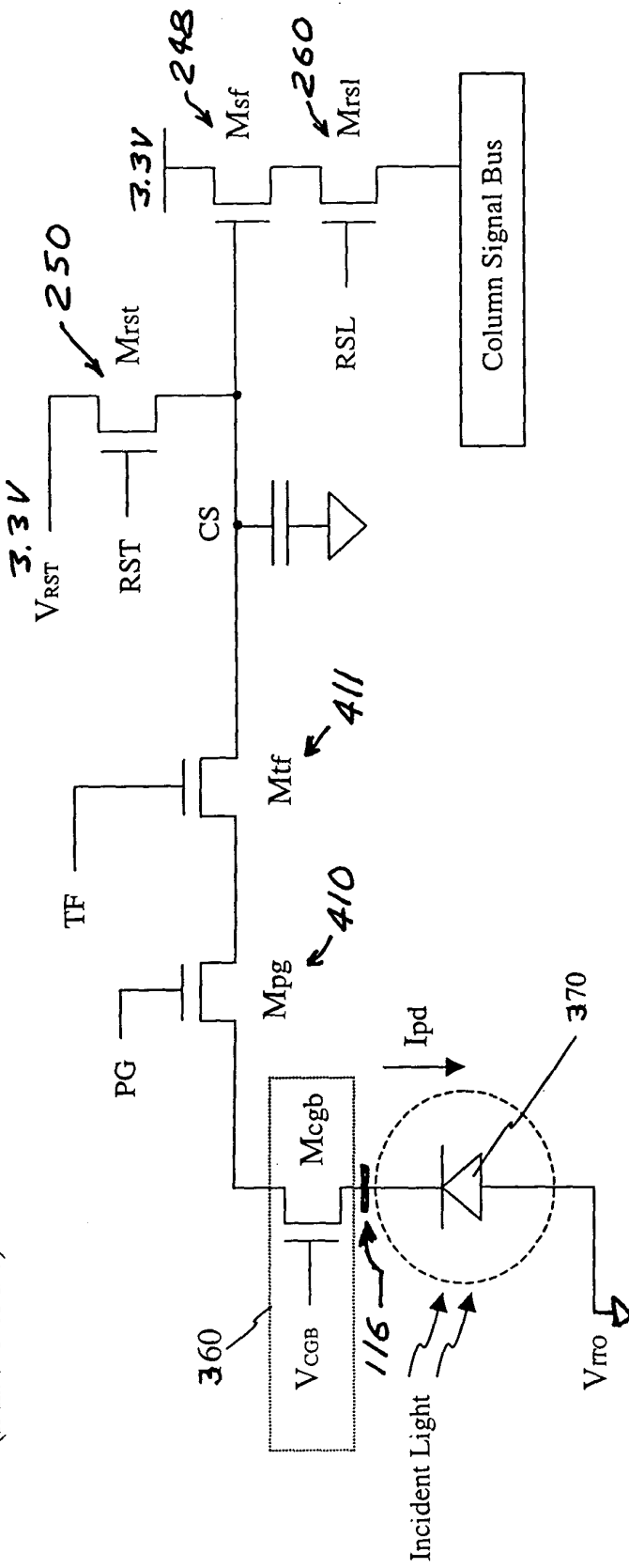


FIG. 11



700



# PBIN POAP Sensor

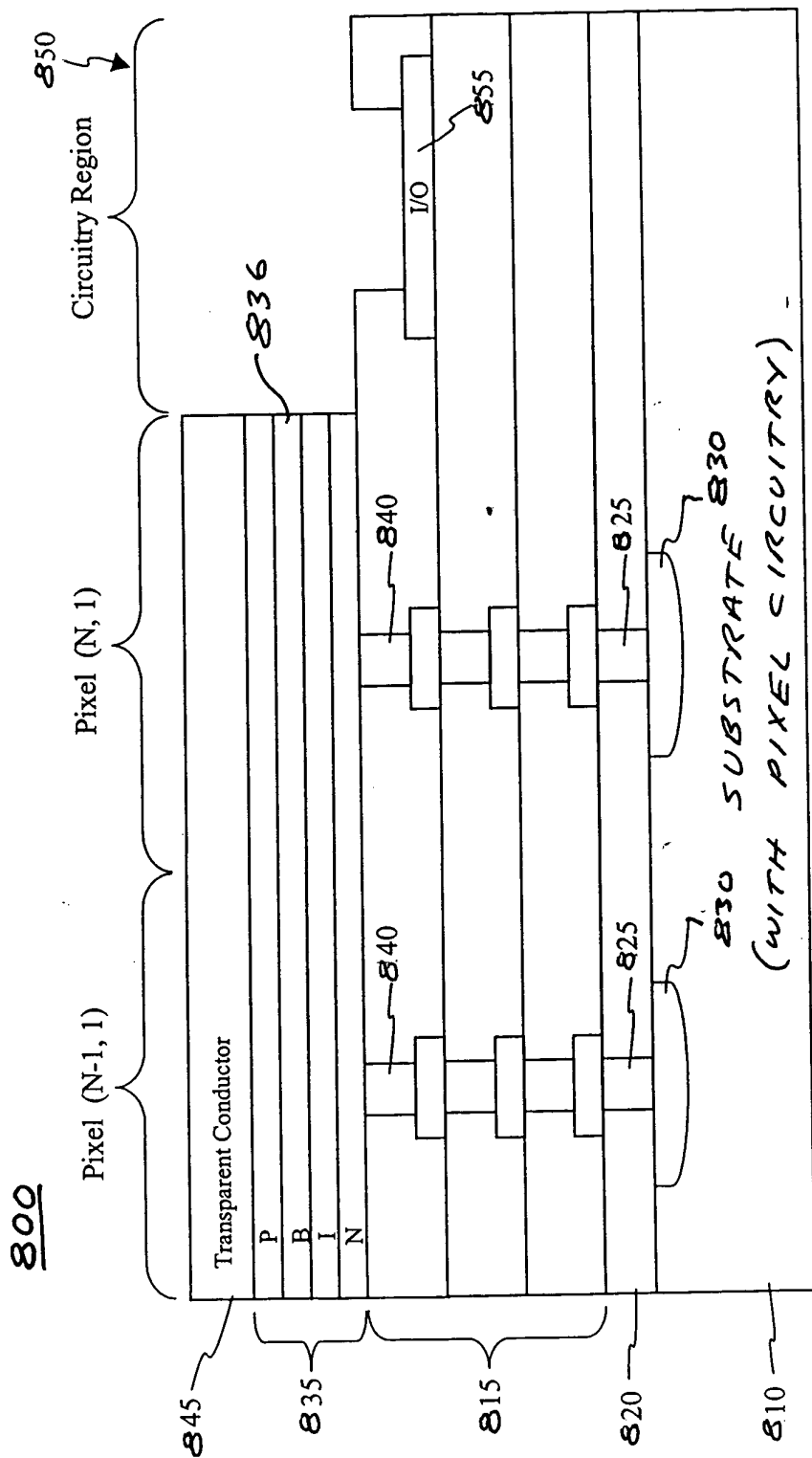


FIG. 14

# PBIN Pixel Architecture

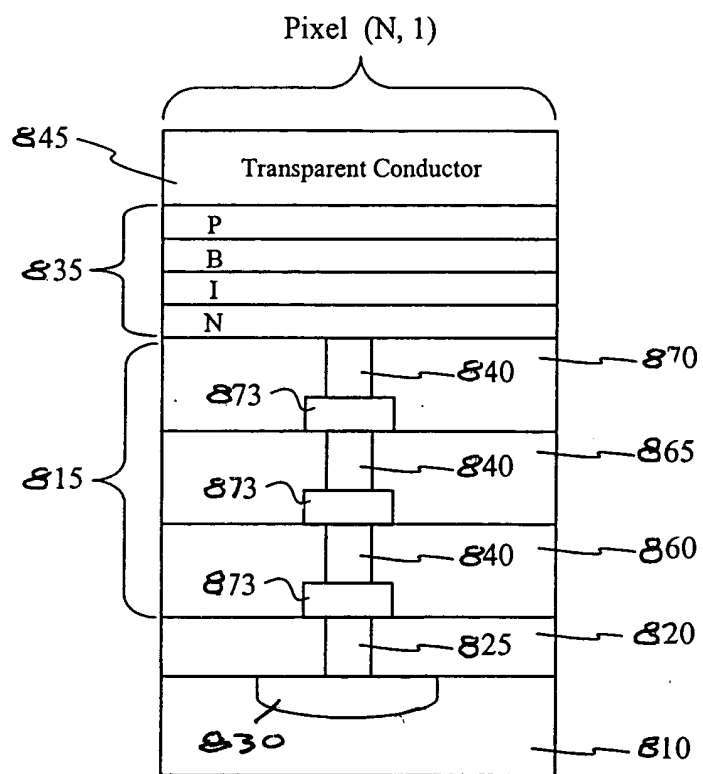


FIG. 15

# PBIN Pixel Cell with Metal Pad

900

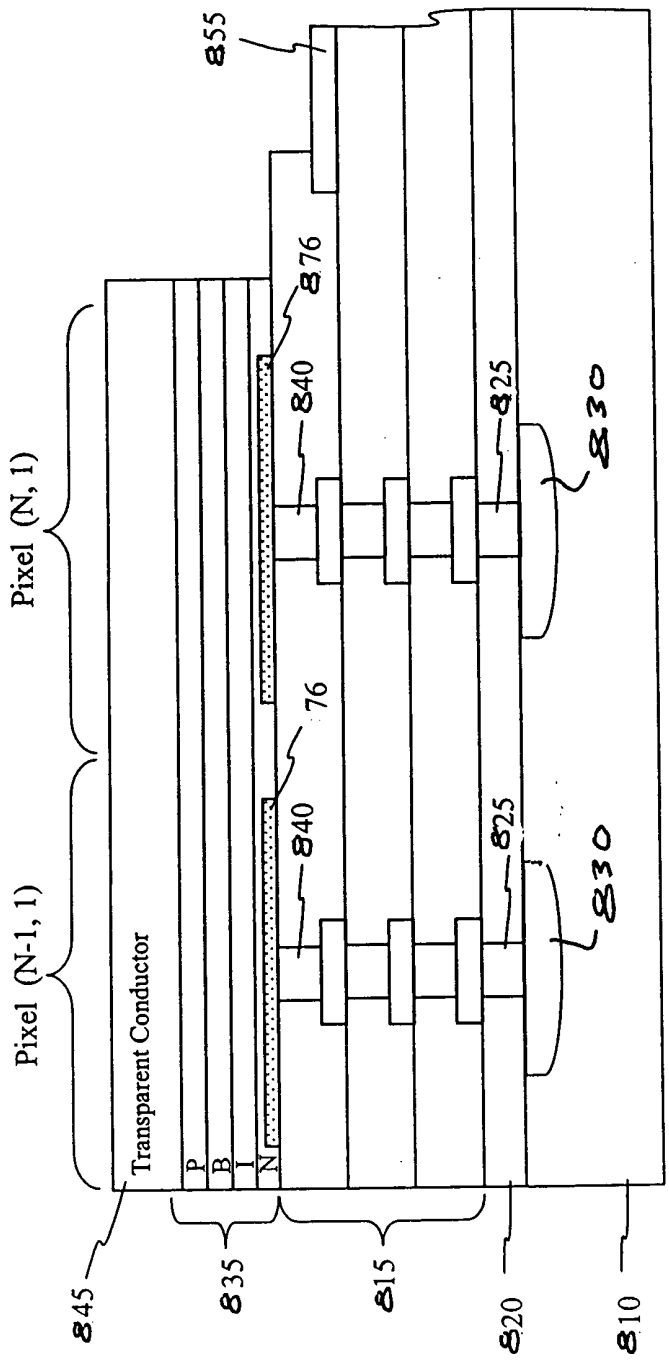


FIG. 16A

# PBIN Pixel Cell with Metal Pad (Alternative Design)

950

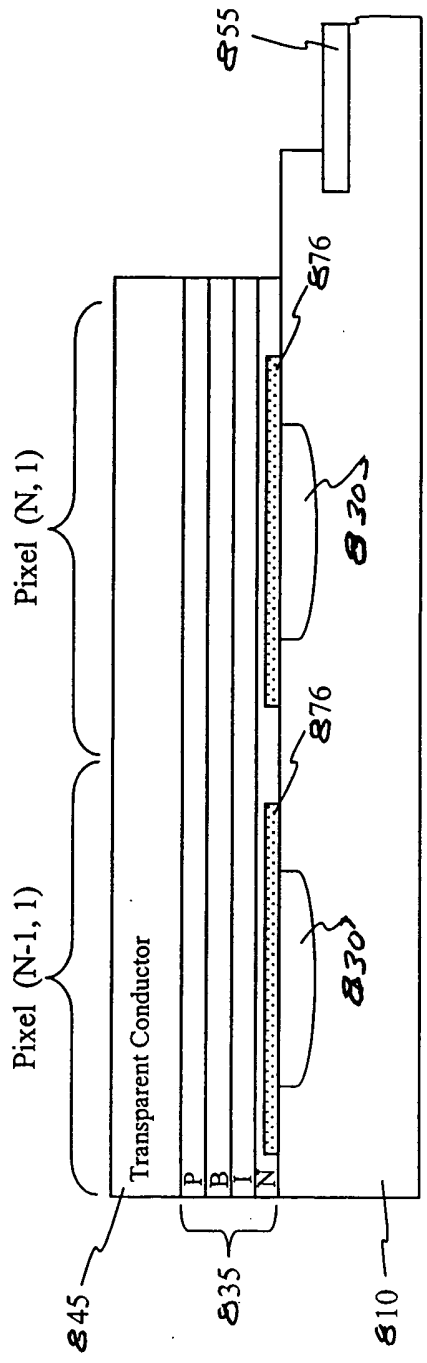


FIG. 16B



POAP Sensor Utilizing Isolated Circuitry Region

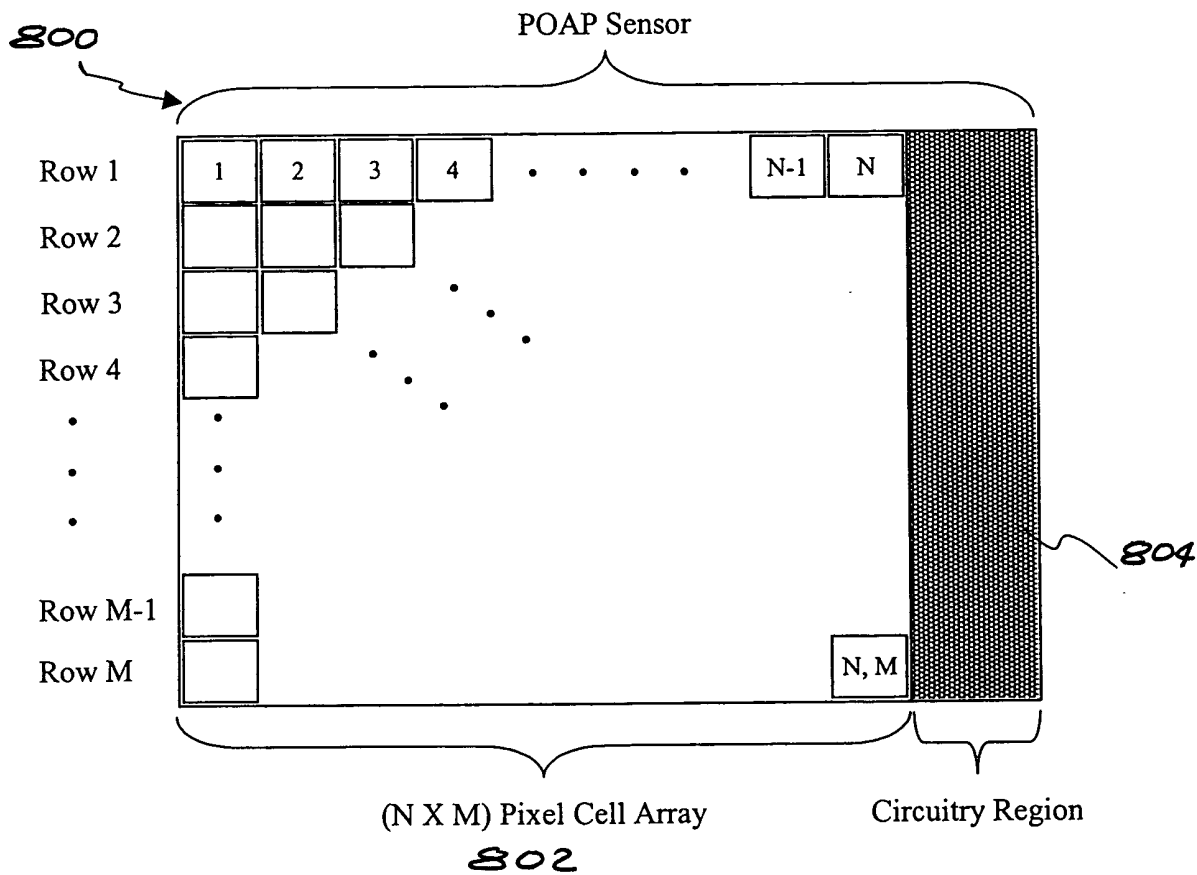


FIG. 17A

## POAP Sensor Utilizing Multiple Circuitry Regions

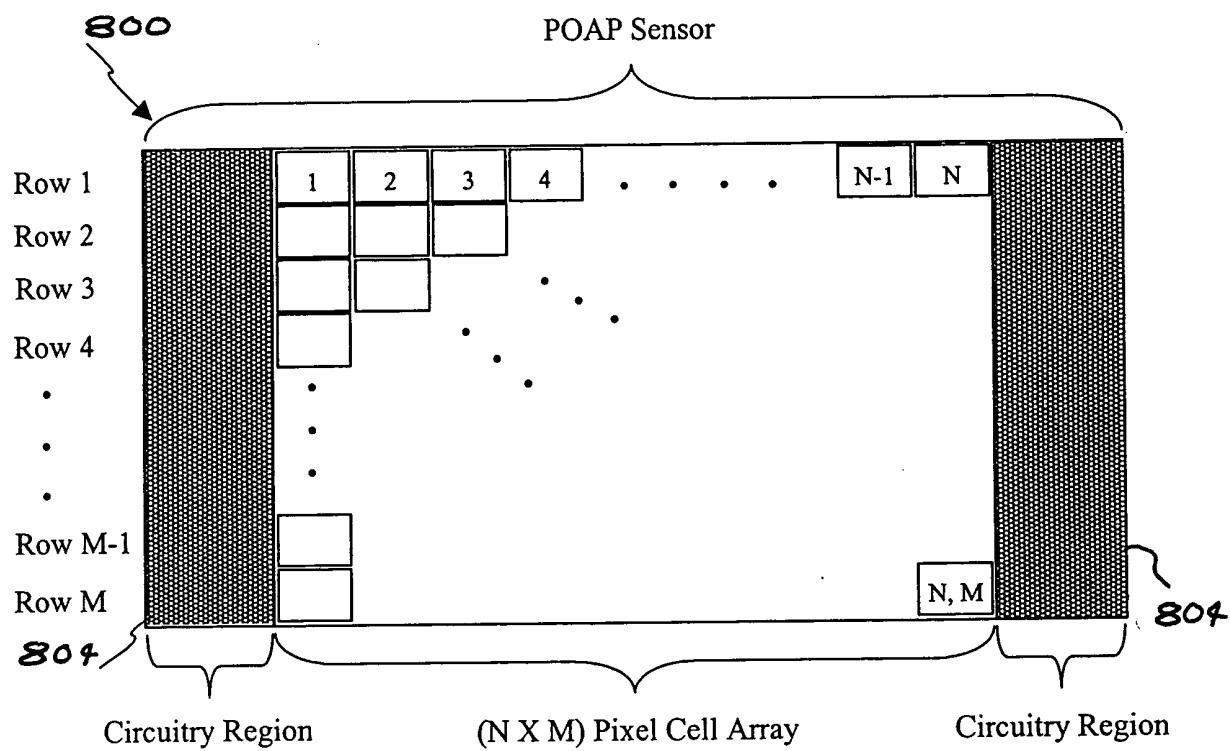


FIG. 17B

## POAP Sensor Utilizing Four-Sided Circuitry Region

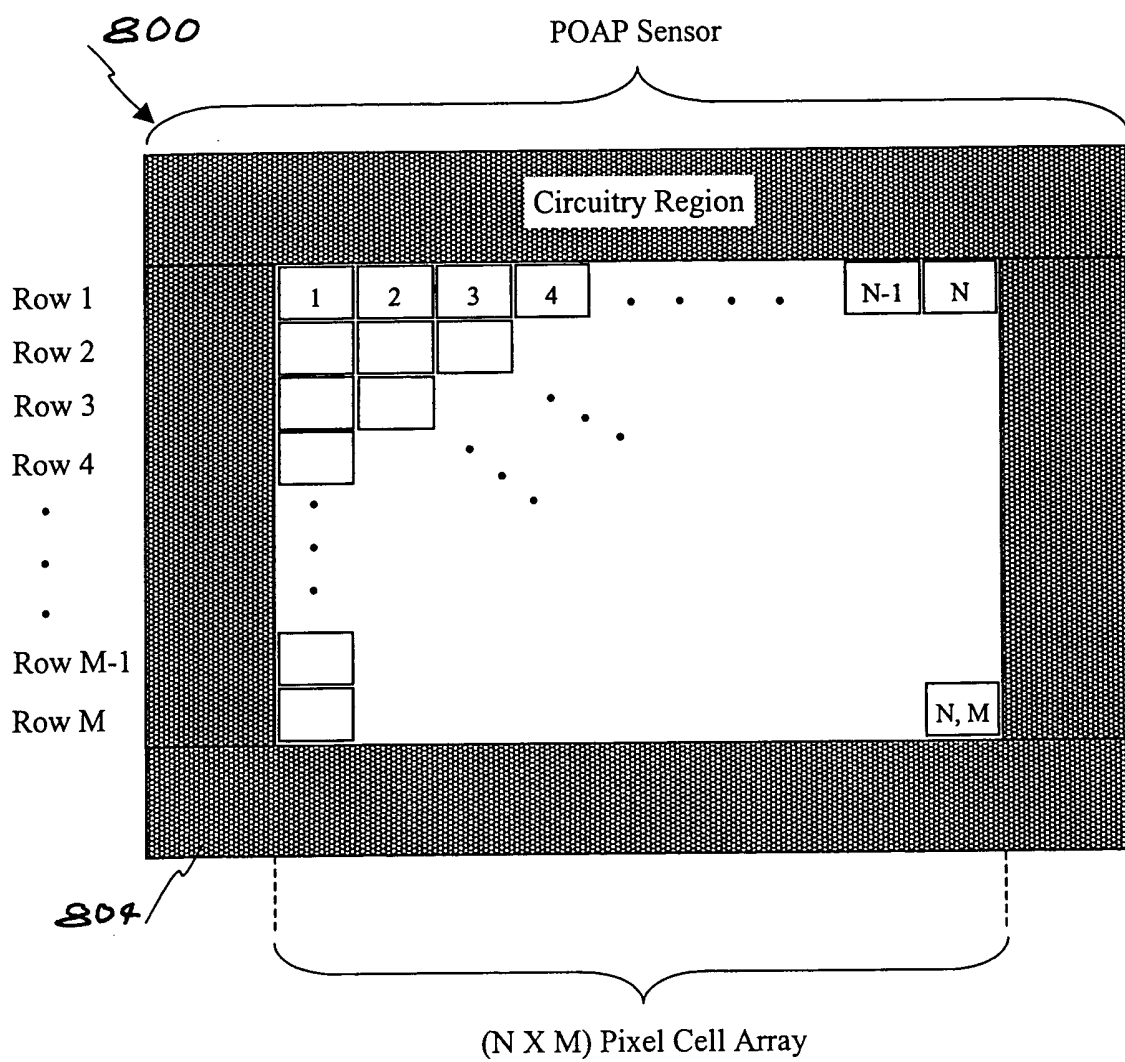


FIG. 17C

## NIBP POAP Sensor

1000

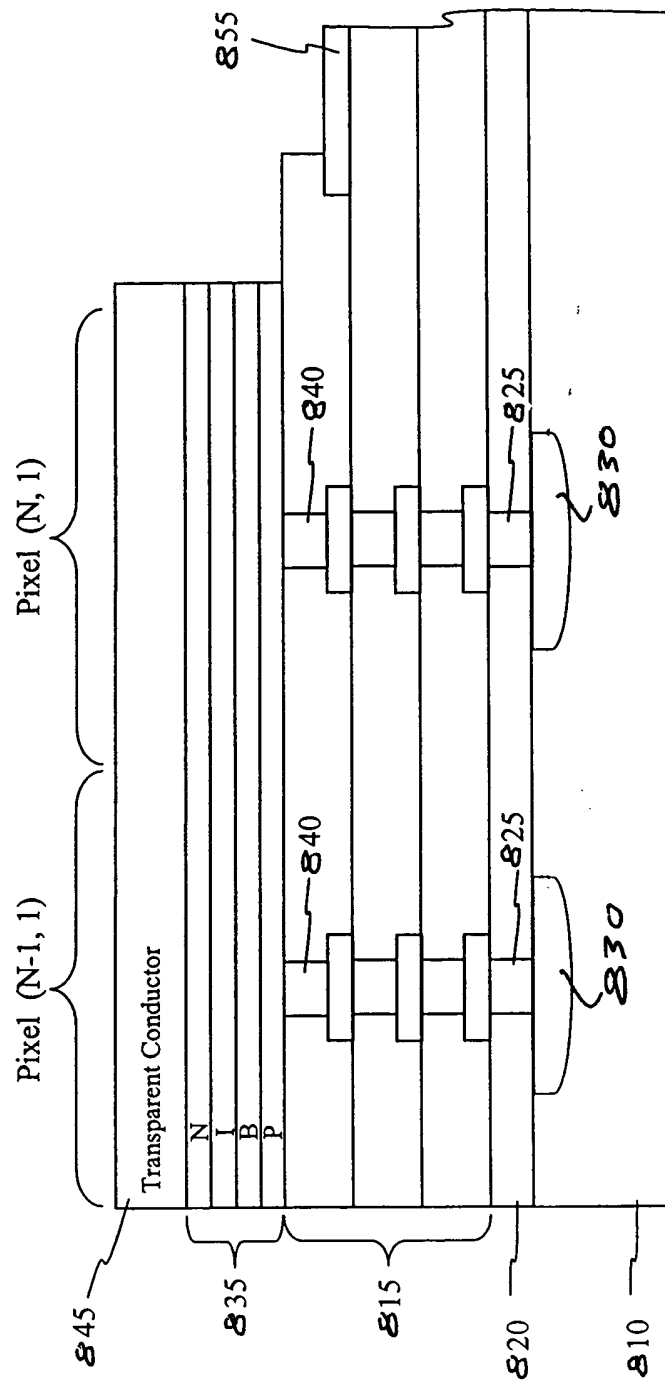


FIG. 18A

# NIBP Pixel Cell with Metal Pad

1050

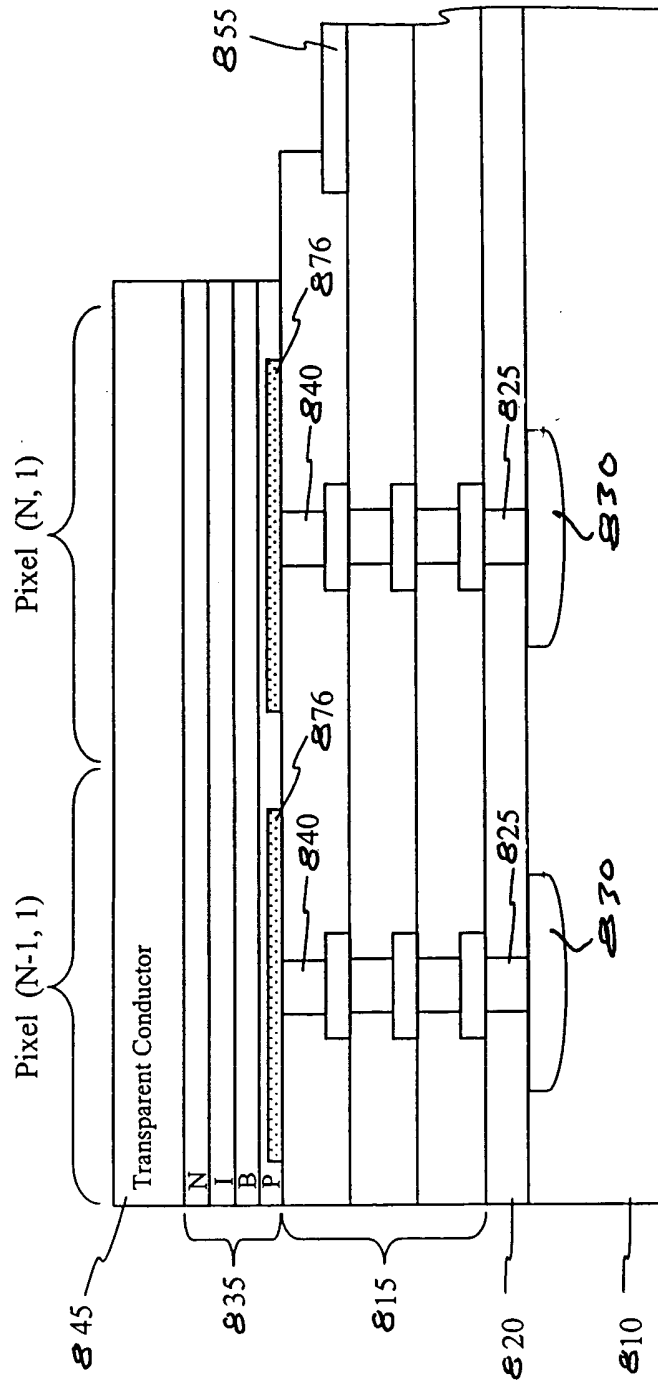


FIG. 18B

# NIBP Pixel Cell with Metal Pad (Alternative Design)

1100

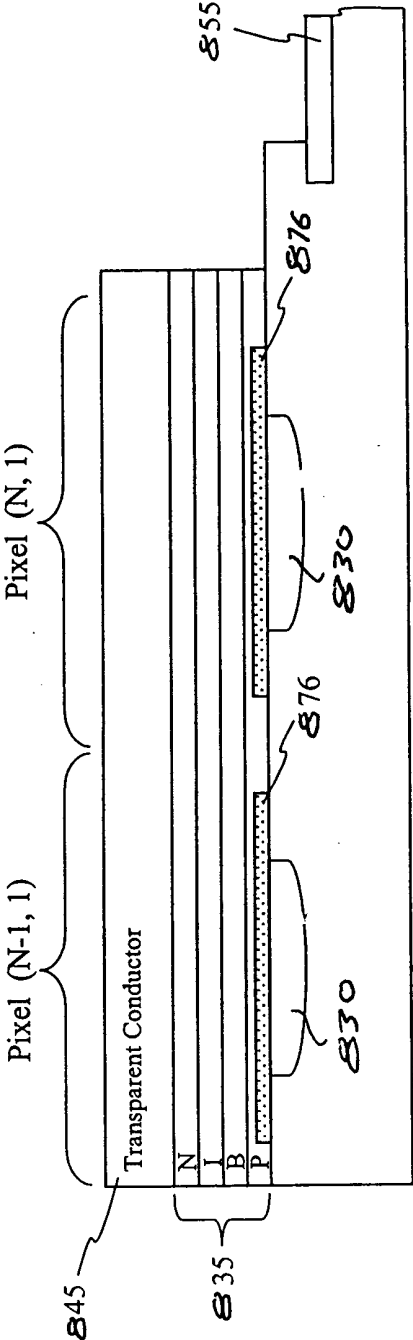


FIG. 18C

## POAP Sensor Having A Discontinuous Trench

1150

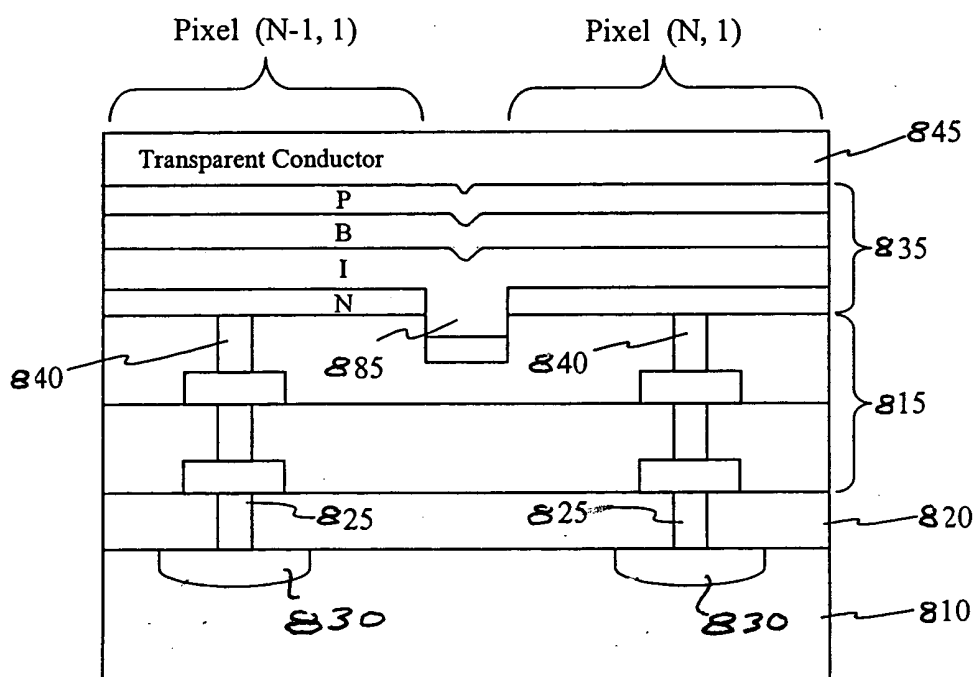
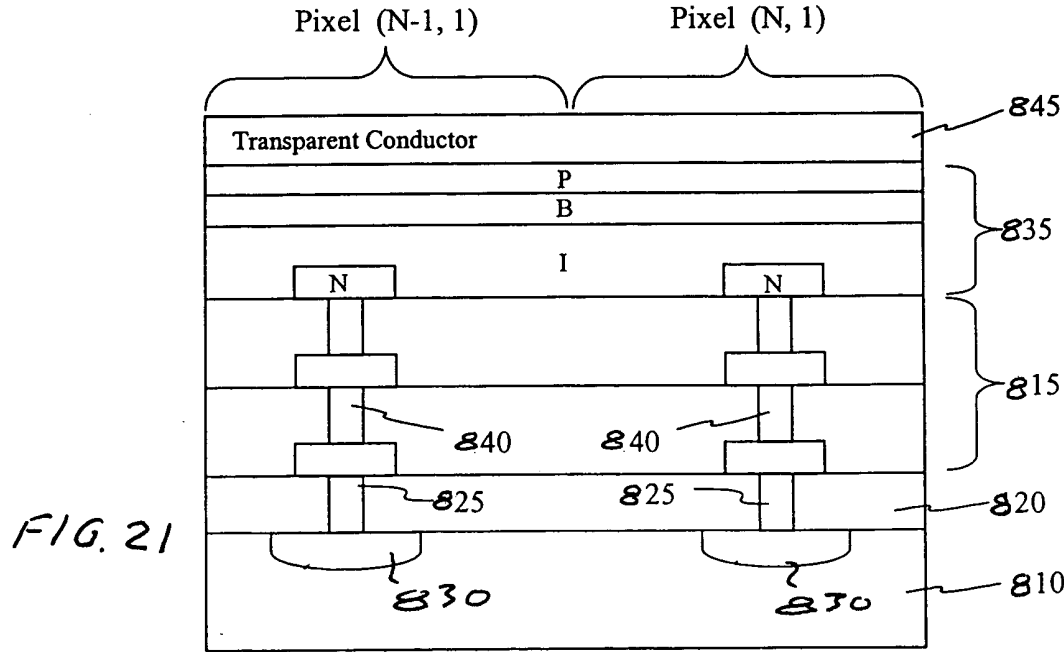
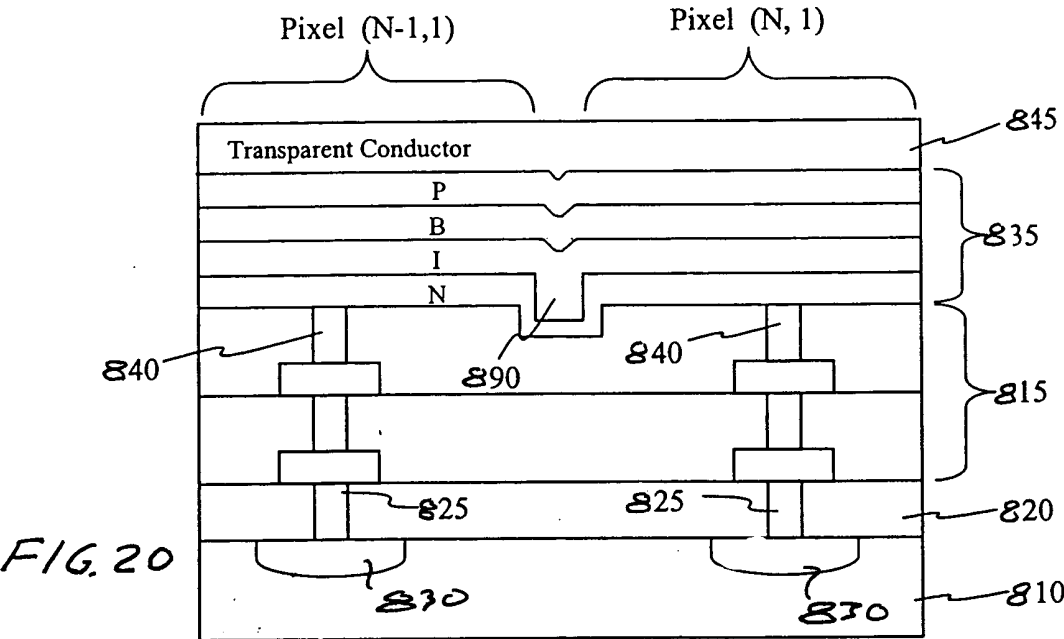
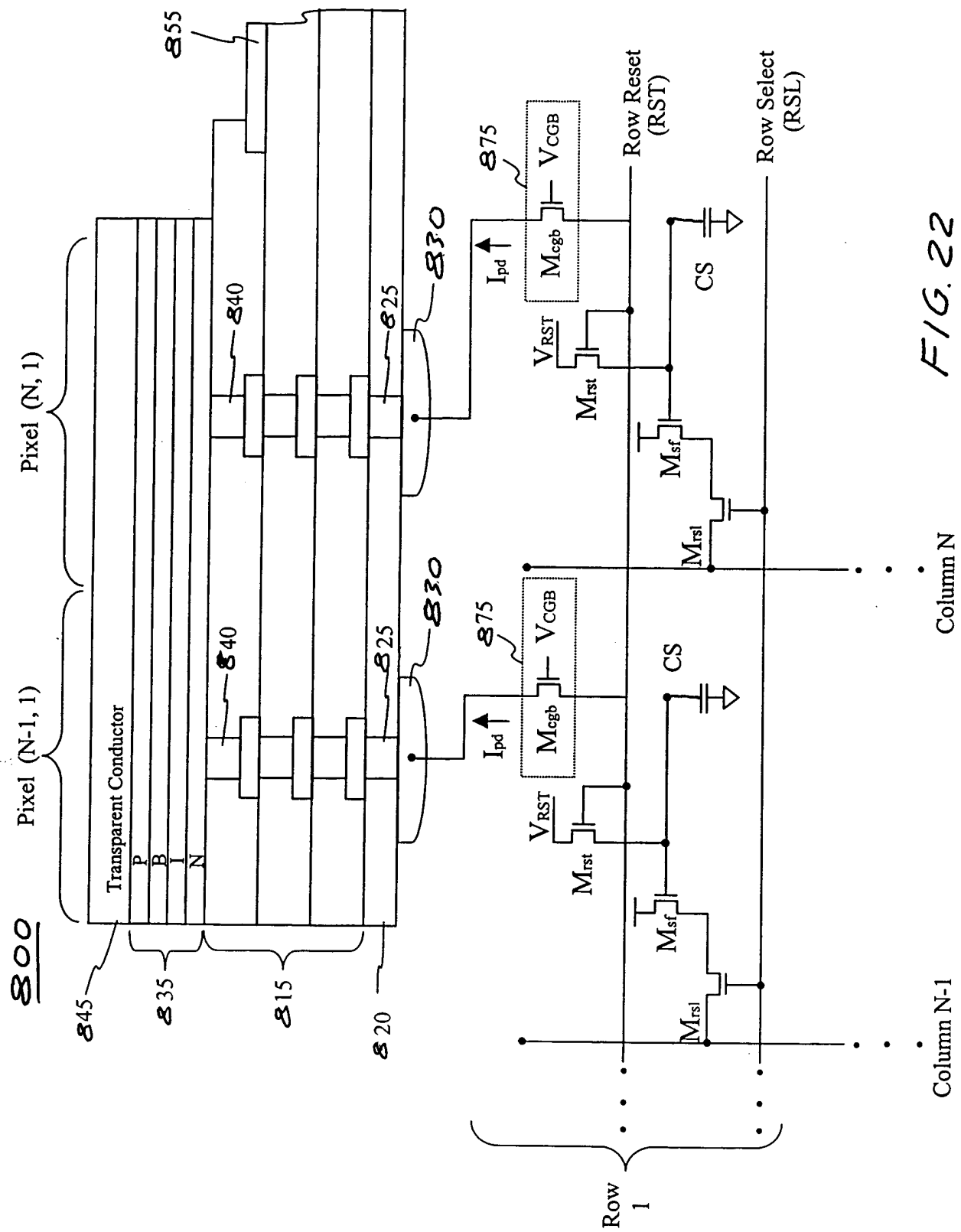


FIG. 19

POAP Sensors Having Trench And Patterned Bottom Layers







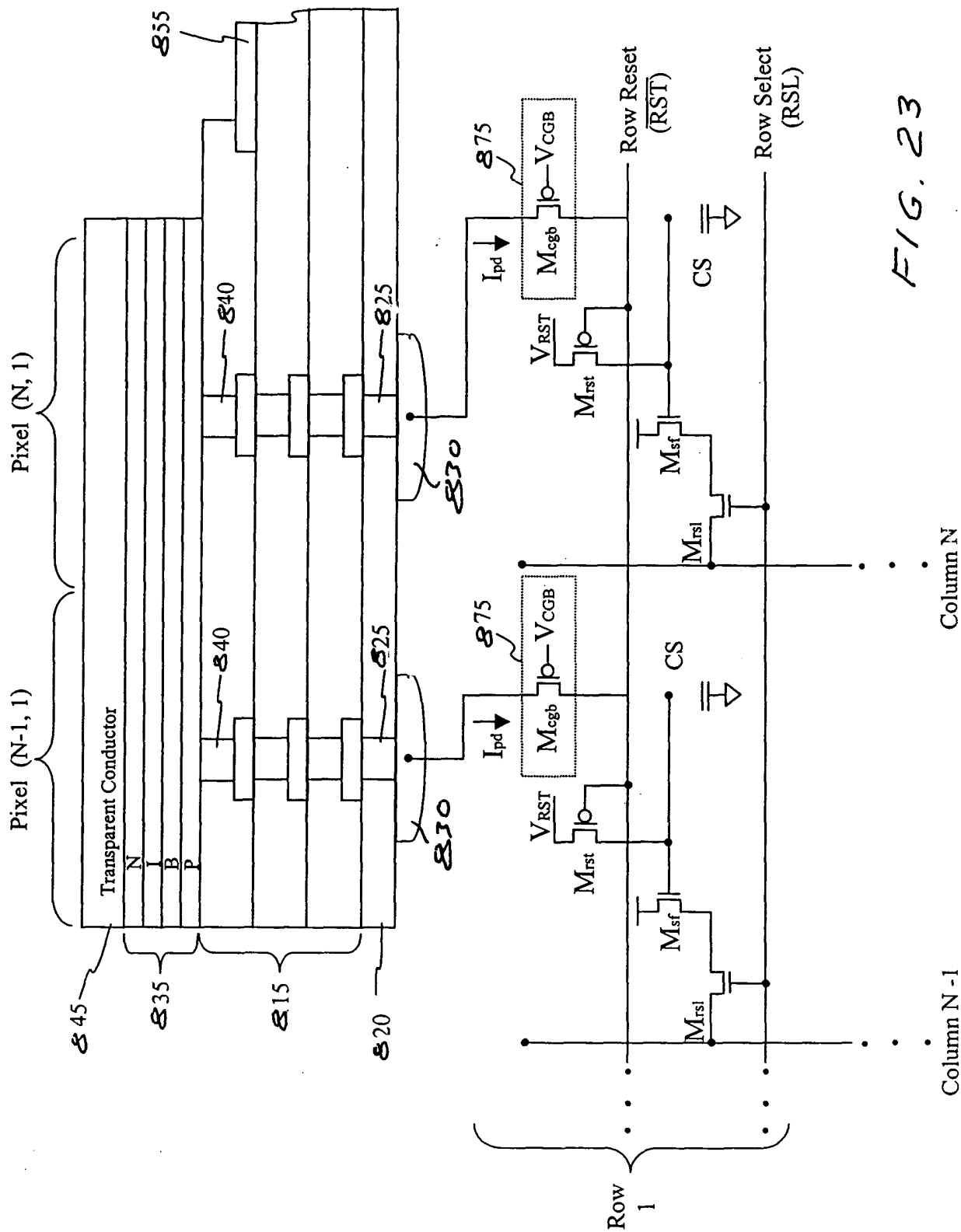


FIG. 23

# Individual Pixel Cell Circuitry (Six-Transistor Architecture)

(PBIN Diode)

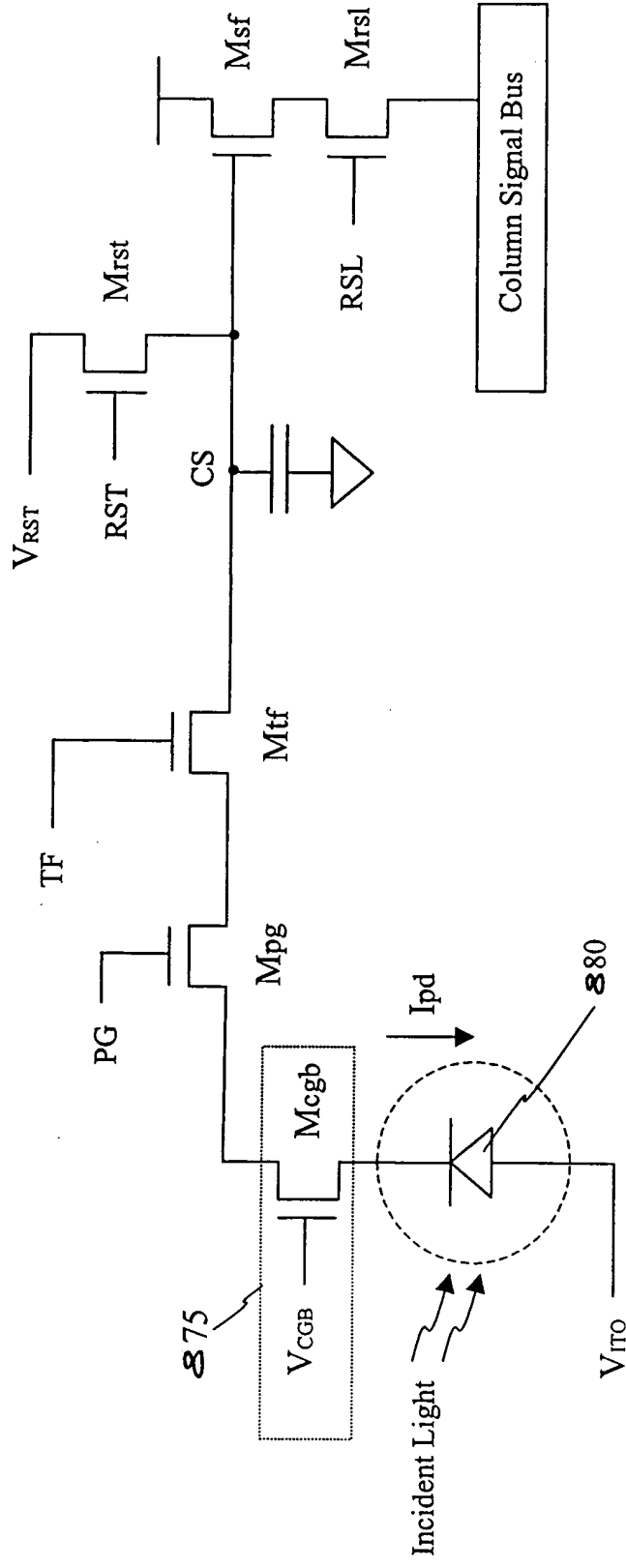


FIG. 24

# Individual Pixel Cell Circuitry (Six-Transistor Architecture)

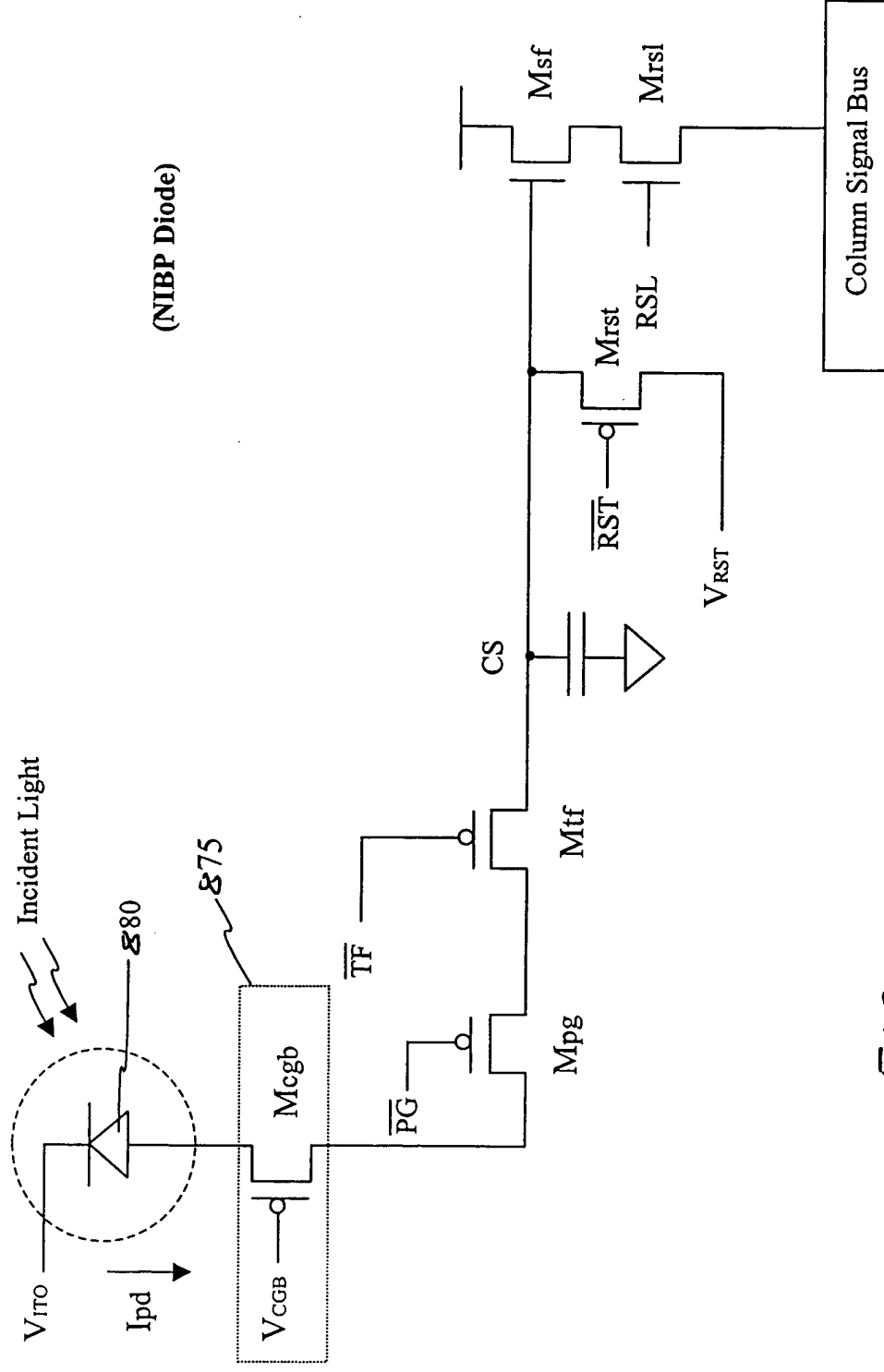
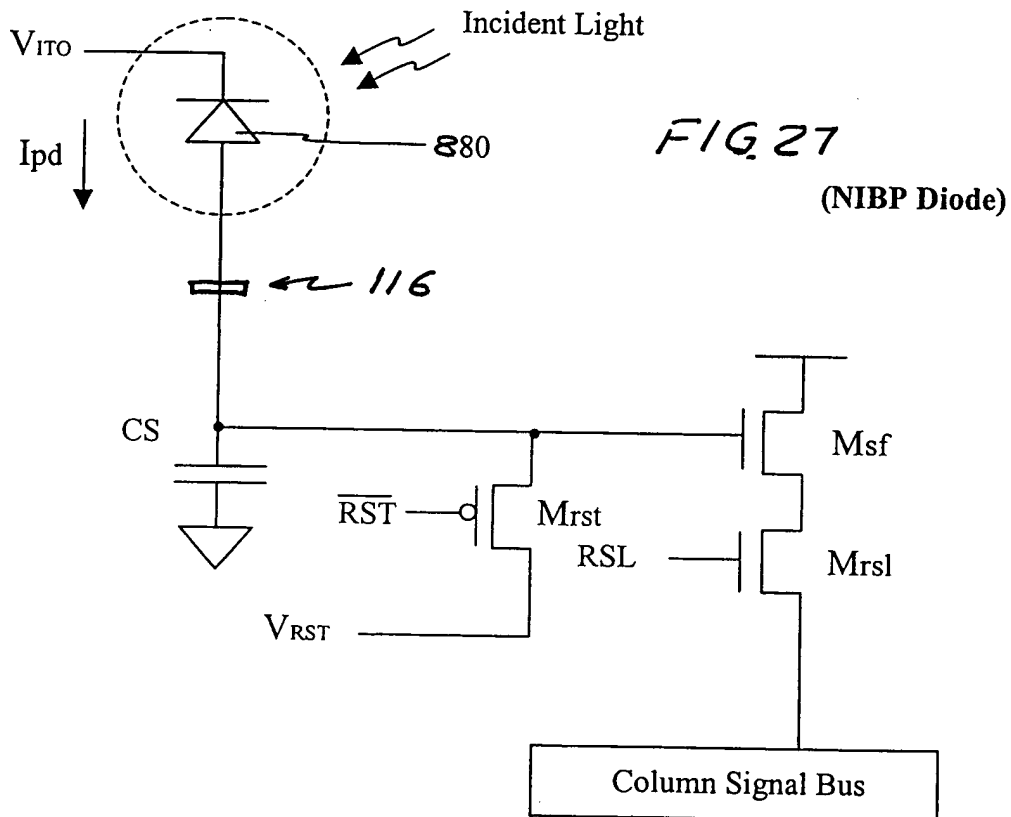
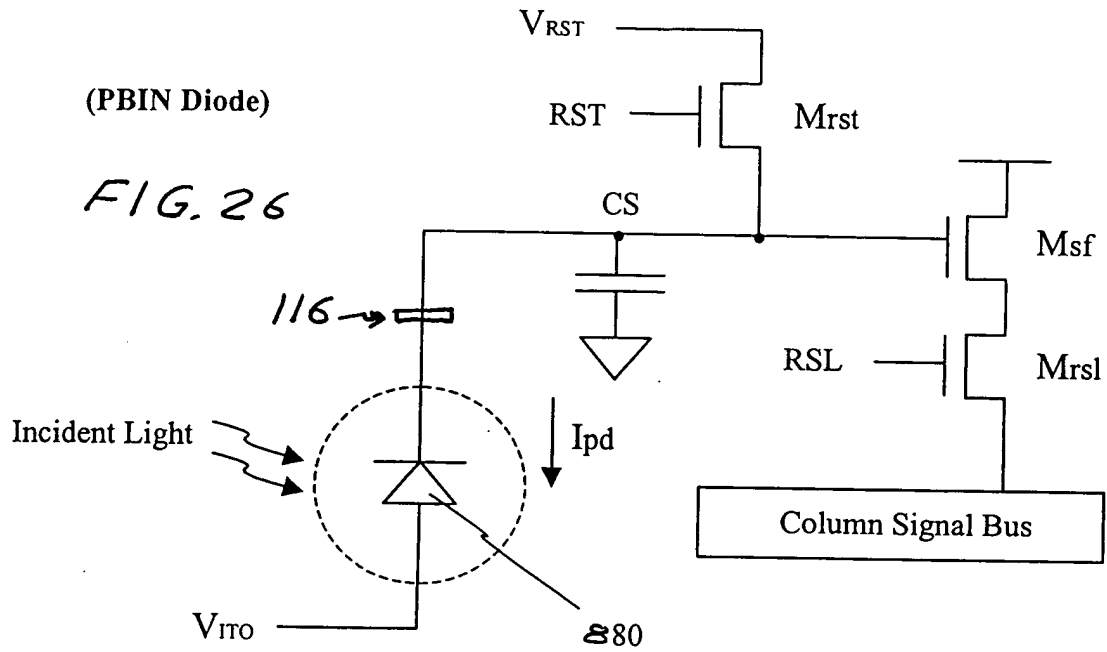


FIG. 25

# Individual Pixel Cell Circuitry Without GBT



# Individual Pixel Cell Circuitry Without GBT (Five-Transistor Architecture)

(PBIN Diode)

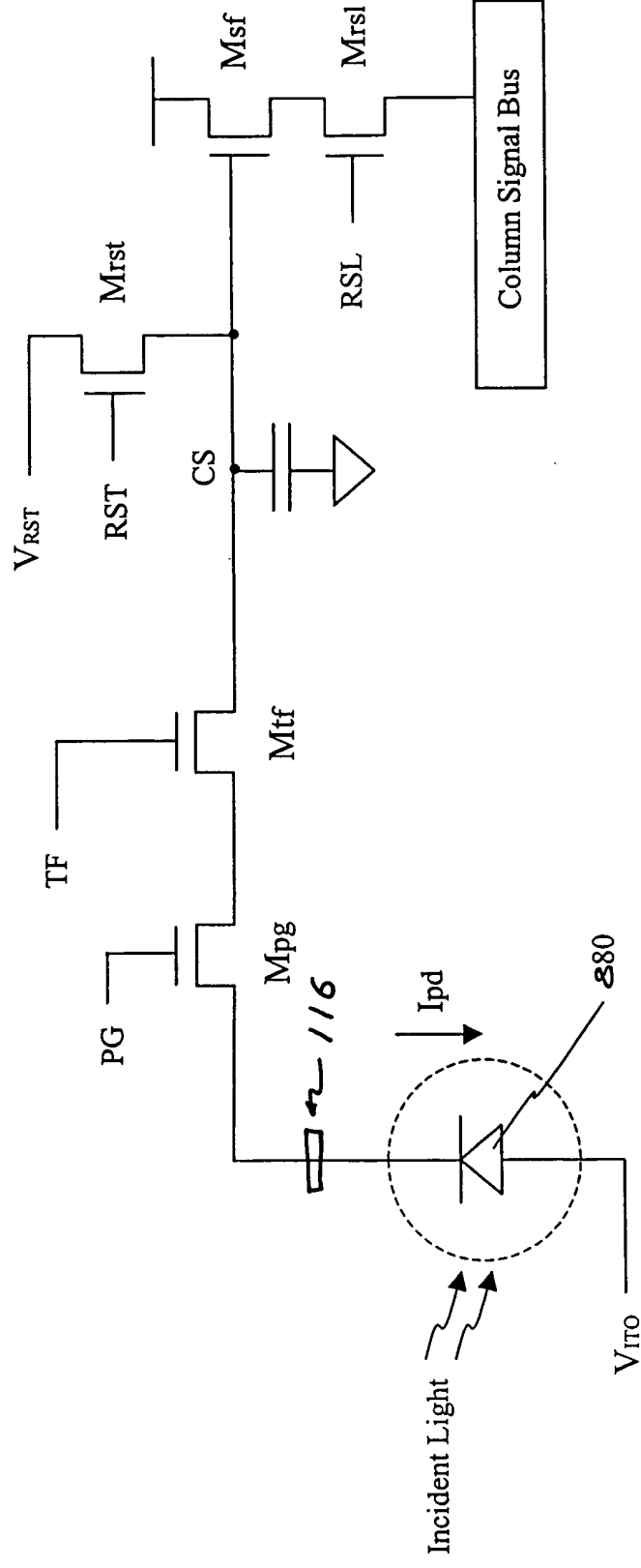


FIG. 28



## Fabricating A POAP Sensor

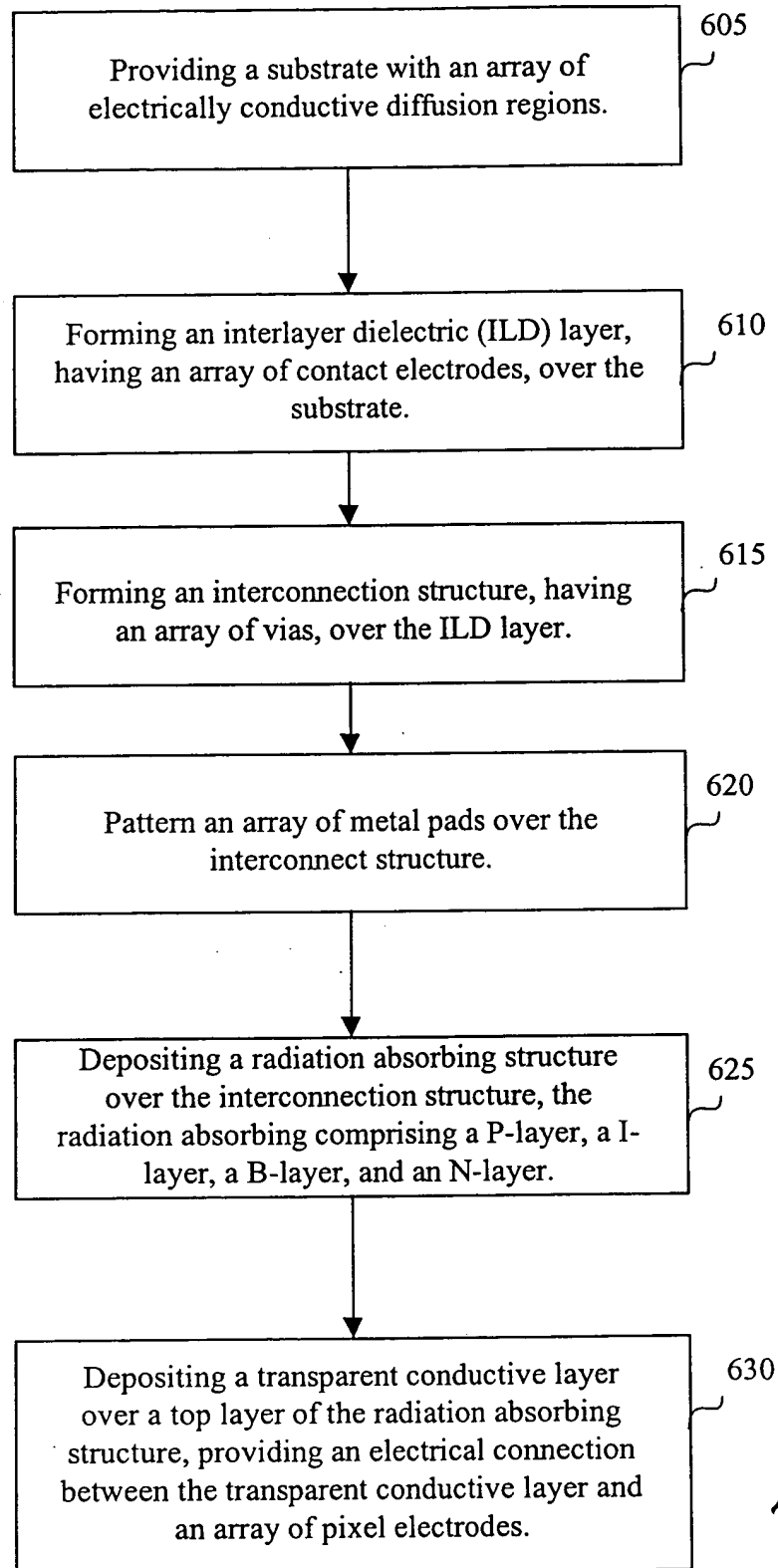


FIG. 30



# POAP Sensor Fabrication

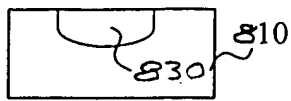


FIG. 31A

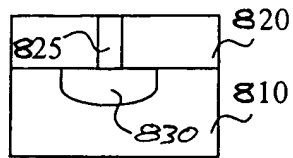


FIG. 31B

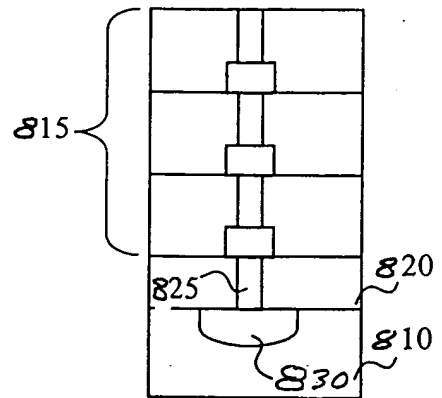


FIG. 31C

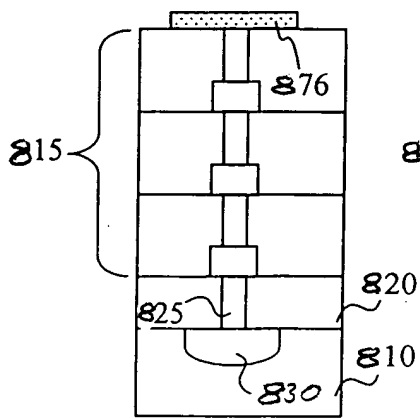


FIG. 31D

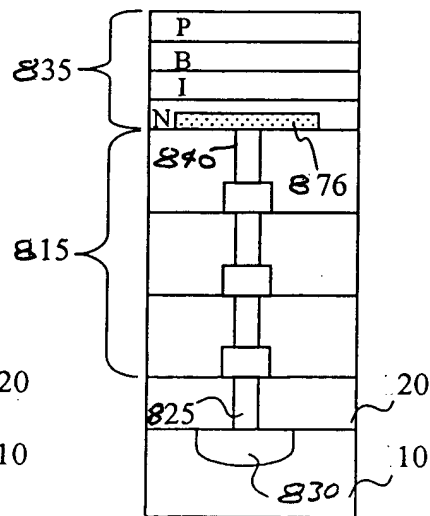


FIG. 31E

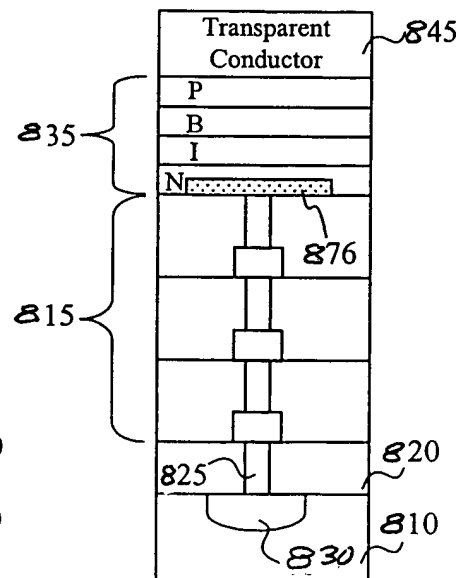


FIG. 31F